

U.S. Application No. 10/617,834

REMARKS

The Applicants request reconsideration of the rejection.

Claims 1 and 4-16 remain pending.

Claims 8-9 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for the minor informalities noted on page 2 of the Office Action. These claims have been amended to address the Examiner's concerns.

Claims 1-3, 12, and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert, et al., US 6,771,595 (Gilbert) in view of Fukumoto, et al., US 2003/0012139 (Fukumoto). The Applicants traverse as follows.

Gilbert shows a host computer 12 that indeed possesses a plurality of interfaces among its various components. However, claim 1, as amended, requires a plurality of line cards which have interfaces for transmitting and receiving packets, switches connected to the line cards, and a statistic information collecting processor connected to the switches. The statistic information collecting processor includes means for analyzing header information imparted to the packets, and means for counting an amount of packets to be transmitted or received through the interfaces. Further, the statistic information collecting processor predicts the amount of packets to be received by the plurality of interfaces from the header information and the amount of packets which have been analyzed, and the interfaces for transmitting the packets are selected on the basis of the amount of packets predicted.

Gilbert discloses an apparatus and method for dynamic resource allocation, including a resource controller that allocates a portion of network memory to a receive path for receiving data and to a transmit path for transmitting data. The allocation is

U.S. Application No. 10/617,834

determined based on monitored traffic patterns, and employs artificial intelligence with the aim of removing and returning to a resource pool, underutilized resources in the transmit and receive paths. Gilbert, however, does not disclose a statistic information processor that predicts the amount of packets to be received by a plurality of line card interfaces, and does not select the interfaces to which future packets are sent to be transmitted based on the predicted amount of packets.

Moreover, the secondary reference to Fukumoto, while disclosing a network system having a plurality of line cards, nevertheless does not teach that which is missing from Gilbert. More specifically, although Fukumoto's line cards monitor communication data, there is no teaching corresponding to the claimed statistic information collecting processor, and no teaching to predict the amount of packets to be received by a plurality of interfaces of the line cards from header information and amount of received packets, so as to select the line card interfaces from which future received packets will be transmitted on the basis of the amount of packets predicted.

In summary, even in combination, Gilbert and Fukumoto fail to teach the apparatus set forth in claim 1 for transmitting packets in improved fashion.

Method claim 12 is similarly distinguishable, reciting steps of receiving packets through the line card interfaces, counting the number of packets received by each of the interfaces, predicting the number of packets to arrive at each of the plurality of interfaces in the future on the basis of the number of packets counted, and selecting an interface for transmitting a transmitted packet on the basis of the number of packets predicted. Neither Gilbert nor Fukumoto discloses or fairly suggests these steps in

U.S. Application No. 10/617,834

combination, and particularly the selection of line card interface for transmitting a packet on the basis of the number of packets predicted.

Apparatus claim 16 is similar to claim 1, but notably, whereas claim 1 requires that the statistic information collecting processor predict the amount of packets to be received by the plurality of interfaces from the header information and the amount of packets which have been analyzed, such that on the basis of the amount of packets predicted, the interfaces for transmitting the packets are selected, claim 16 is instead limited by reciting that the statistic information collecting processor selects an interface for transmitting a packet on the basis of the amount of packets counted by the processor. Neither Gilbert nor Fukumoto suggests a statistic information collecting processor that selects a line card interface for packet transmission on the basis of the amount of packets received and counted thereby, and thus claim 16 is also patentable.

Claims 4, 10, and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto and Manning, US 6,473,400 (Manning). The Applicants traverse as follows.

Claim 4 is dependent from claim 1 and thus inherits its patentable features. In addition, claim 4 is patentable because none of Gilbert, Fukumoto, and Manning disclose the statistic information collecting processor claimed in claim 4.

Dependent claims 10 and 11 are not obvious over the combination, either. In addition to inheriting the patentable features of claim 1, amended claim 10 (and claim 11 by virtue of its dependency on claim 10) patentably recites a table provided in each of the line cards, on which a relationship of a correspondence between header information of the received packets and an output line card of the packet is described.

U.S. Application No. 10/617,834

as well as a statistics table provided in the statistic information collecting processor, on which is described a relationship of a correspondence between header information of the received packets and the amount of packets. Claim 11 further recites means for renewing the table provided in each of the line cards on the basis of the amount of packets predicted.

Gilbert and Fukumoto have already been distinguished as to the statistic information collecting processor and prediction of packet amounts. Manning discloses an RMON matrix table for providing traffic flow data in a packet-switched data transmission system, but Manning does not teach a line card having the table storing the correspondence relationship between header information and output line card as claimed. Further, Manning does not suggest the statistics table provided in the statistic information collecting processor, or renewing the table as required by claim 11.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto and Born, US 6,631,484 (Born). However, Born does not supply the teachings missing from Gilbert and Fukumoto as argued above, and further does not teach the interfaces that have means for storing, in a frame, at least a portion of plural headers imparted to a plurality of packets which the interfaces transmit and receive, and means for transmitting the frame to the statistic information collecting processor. The claimed frame storing the portion of plural headers is not met by the FIFO memory taught by Born.

Claims 6, 7, and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto, Born, and Agarwal, US 6,819,658 (Agarwal). None of these documents, however, suggests the frame claimed in claim 5

U.S. Application No. 10/617,834

and limited according to claims 6 and 7, or the frame claimed in claim 13. In particular, the addition of Agarwal does not meet the requirement for multiplexing plural headers into a frame; rather, Agarwal seems only to describe multiplexing of packets.

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto and Chiussi, et al., US 7,027,457 (Chiussi). Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto and Muller, US 6,016,310 (Muller). Claims 14-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gilbert in view of Fukumoto, Agarwal, and Kojima, JP 2001-160832 (Kojima). Each of these dependent claims inherits the patentable features of the respective independent claim from which it is derived, and thus each is also patentable, even considering the combination rejection including the added reference or references. Therefore, for brevity, the separate patentability of these claims will not be addressed at this time. In addition, the rejection of Claims 14-15 appears to be deficient in failing to rely on Born, which was applied in the combination rejection of claim 13, from which claims 14-15 are derived.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

U.S. Application No. 10/617,834

To the extent necessary, the Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. H-1100).

Respectfully submitted,

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